Message

From: Guiseppi-Elie, Annette [Guiseppi-Elie.Annette@epa.gov]
Sent: 4/2/2020 2:12:23 PM
To: Van Bronkhorst, Kelly [VanBronkhorst.Kelly@epa.gov]
CC: Cascio, Wayne [Cascio.Wayne@epa.gov]; Richards, Frances [Richards.Frances@epa.gov]; Holt, Kay [Holt.Kay@epa.gov]; Barron, Mace [Barron.Mace@epa.gov]; Conmy, Robyn [Conmy.Robyn@epa.gov]; Thomas, Russell [Thomas.Russell@epa.gov]; Buckley, Timothy [Buckley.Timothy@epa.gov]
Subject: RE: GAO Entrance Conference on "The Use and Known Effects of Dispersants in Oil Spills"
Attachments: Draft Dispersant release June 29-eocdraft-finalclean_ORD_Edits.docx; Judson et al_oil_dispersants_2010.pdf

Kelly,

Also as follow up, this is what I found from NCCT contacts (both documents are attached):

- A draft press release with some general conclusions about testing:

"EPA tested these eight products for endocrine disrupting activity, toxicity to living cells and for potential impacts on small fish and mysid shrimp. The testing found:

- *Six of the eight products – including the product currently in use – shows no signs of acting as endocrine disruptors and two dispersants showed very limited potential to function as endocrine disruptors in one screening test.*
- *Toxicity to living cells screening and toxicity to small fish and mysid shrimp tests of the dispersant products alone – not mixed with oil or seawater –showed that while all eight products had roughly the same effects, one of them, JD 2000 was generally less toxic"*

- The paper by Judson et al (2010): "***Analysis of Eight Oil Spill Dispersants Using Rapid, In Vitro Tests for Endocrine and Other Biological Activity***". Abstract below with my highlight:

The Deepwater Horizon oil spill has led to the use of >1 M gallons of oil spill dispersants, which are mixtures of surfactants and solvents. Because of this large scale use there is a critical need to understand the potential for toxicity of the currently used dispersant and potential alternatives, especially given the limited toxicity testing information that is available. In particular, some dispersants contain nonylphenol ethoxylates (NPEs), which can degrade to nonylphenol (NP), a known endocrine disruptor. Given the urgent need to generate toxicity data, we carried out a series of in vitro high-throughput assays on eight commercial dispersants. These assays focused on the estrogen and androgen receptors (ER and AR), but also included a larger battery of assays probing other biological pathways. Cytotoxicity in mammalian cells was also quantified. No activity was seen in any AR assay. Two dispersants showed a weak ER signal in one assay (EC50 of 16 ppm for Nokomis 3-F4 and 25 ppm for ZI-400). NPs and NPEs also had a weak signal in this same ER assay. Note that Corexit 9500, the currently used product, does not contain NPEs and did not show any ER activity. Cytotoxicity values for six of the dispersants were statistically indistinguishable, with median LC50 values ~100 ppm. Two dispersants, JD 2000 and SAFRON GOLD, were significantly less cytotoxic than the others with LC50 values approaching or exceeding 1000 ppm.

I am still researching the reference made to DeMarini made on the last call.

All best, Annette (Mobil Ex. 6 Personal Privacy (PP)

From: Buckley, Timothy <Buckley.Timothy@epa.gov>
Sent: Thursday, April 02, 2020 9:50 AM
To: Van Bronkhorst, Kelly <VanBronkhorst.Kelly@epa.gov>
Cc: Cascio, Wayne <Cascio.Wayne@epa.gov>; Guiseppi-Elie, Annette <Guiseppi-Elie.Annette@epa.gov>; Richards, Frances <Richards.Frances@epa.gov>; Holt, Kay <Holt.Kay@epa.gov>
Subject: FW: GAO Entrance Conference on "The Use and Known Effects of Dispersants in Oil Spills"

Kelly,

In follow-up to yesterday's discussion, see the below (and attached) description of CPHEA's in vitro tox testing of dispersants done in collaboration with NCCT. The science leads for this work are Vickie Wilson and Earl Gray.

Tim

Timothy J. Buckley, Ph.D.
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CPHEA's Vision is to be *world leaders delivering innovative and integrative research providing the foundation for evidence-based decisions and actions to protect our environment, public health and well-being.*

From: Wilson, Vickie <Wilson.Vickie@epa.gov>
Sent: Wednesday, April 1, 2020 5:15 PM
To: Rogers, John M. <Rogers.John@epa.gov>; Buckley, Timothy <Buckley.Timothy@epa.gov>
Cc: Diaz-Sanchez, David <Diaz-Sanchez.David@epa.gov>; Gray, Earl <Gray.Earl@epa.gov>
Subject: RE: GAO Entrance Conference on "The Use and Known Effects of Dispersants in Oil Spills"

Tim, David and John

Listed below in my email are my short answer's to Tim's questions.

This work was done at the agency's request as part of the emergency response to the Deepwater Horizon oil spill to evaluate several dispersants being considered for use at the spill in our in vitro assays. I have attached a one page brief of the work.
For reference and background, also attached are both the NHEERL Report and the final report which combines both the NHEERL and NCCT results.

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Short answers to Tim's questions below:
For Question 4 a).
If any dispersants displayed estrogen receptor or androgen receptor-mediated activity, this would have been of concern for potential adverse human health effects and for effects in other vertebrates. However, the tested dispersants were negative for these endocrine activities. Some dispersants, however, were far more cytotoxic than others.

For Question 12)
Our data was combined with NCCT data and provided in a report to the Agency (copies of both the NHEERL and combined reports are attached). It is unknown how or if the Agency used these data.

Vickie S. Wilson
Chief, Reproductive and Developmental Toxicology Branch
US EPA, ORD, CPHEA
Public Health and Integrated Toxicology Division
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(919) 541-3559 office

From: Rogers, John M. <Rogers.John@epa.gov>
Sent: Wednesday, April 01, 2020 12:11 PM
To: Wilson, Vickie <Wilson.Vickie@epa.gov>
Cc: Diaz-Sanchez, David <Diaz-Sanchez.David@epa.gov>
Subject: Fwd: GAO Entrance Conference on "The Use and Known Effects of Dispersants in Oil Spills"

Vickie,
I don't know if what TAD did years ago is of interest for this, but please provide brief answers to Tim's questions re the in vitro assays you did. Please copy David and me.
Thanks,
John

Sent from my iPhone

Begin forwarded message:

From: "Buckley, Timothy" <Buckley.Timothy@epa.gov>
Date: April 1, 2020 at 11:28:55 AM EDT
To: "Thornhill, Alan" <thornhill.alan@epa.gov>, "Beedlow, Peter" <Beedlow.Peter@epa.gov>, "Baxter, Lisa" <Baxter.Lisa@epa.gov>, "Wade, Tim" <Wade.Tim@epa.gov>, "Diaz-Sanchez, David" <Diaz-Sanchez.David@epa.gov>, "Rogers, John M." <Rogers.John@epa.gov>, "Thayer, Kris" <thayer.kris@epa.gov>, "Avery, James" <Avery.James@epa.gov>, "Vandenberg, John" <Vandenberg.John@epa.gov>, "Dutton, Steven" <Dutton.Steven@epa.gov>
Cc: "Jones, Samantha" <Jones.Samantha@epa.gov>, "Richards, Frances" <Richards.Frances@epa.gov>, "Saterson, Kathryn" <Saterson.Kathryn@epa.gov>, "Cascio, Wayne" <Cascio.Wayne@epa.gov>, "Holt, Kay" <Holt.Kay@epa.gov>, "Russo, Bill" <Russo.Bill@epa.gov>
Subject: GAO Entrance Conference on "The Use and Known Effects of Dispersants in Oil Spills"

DDs,

An initial discussion/meeting is scheduled for tomorrow 1 PM with GAO on the topic of "The Use and Known Effects of Dispersants in Oil Spills". For this meeting, I need to know if CPHEA has work that is relevant to the following questions.

4. To what extent has EPA research into dispersants resulted in clear findings on potential human health effects? CCTE/CPHEA

a. To your knowledge have there been clear findings related to human health effects from dispersants? If so, please describe them. CCTE/CPHEA

12. Please describe how EPA incorporates the latest scientific findings on the use of dispersants and their impact or potential impact on human health and the environment. Robyn, Mace, CCTE/CPHEA

By 9 AM tomorrow (Thur) , please let me know if you have anyone in your division doing relevant research and a brief description of the nature of the research.

Thanks for your help and sorry for the quick turn-around.

Tim

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